Name:

at1113exam: Expand, factor, and solve quadratics (v214)

1. Expand the following expression into standard form.

$$(7x + 9)^2$$

$$49x^2 + 63x + 63x + 81$$
$$49x^2 + 126x + 81$$

2. Expand the following expression into standard form.

$$(5x + 9)(5x - 9)$$

$$25x^2 - 45x + 45x - 81$$
$$25x^2 - 81$$

3. Expand the following expression into standard form.

$$(4x + 5)(6x - 7)$$

$$24x^2 - 28x + 30x - 35$$
$$24x^2 + 2x - 35$$

4. Solve the equation.

$$(8x + 7)(9x + 2) = 0$$

$$x = \frac{-7}{8} \qquad x = \frac{-2}{9}$$

5. Solve the equation.

$$12x^2 - 8x - 19 \;=\; 5x^2 - 2x - 3$$

$$7x^2 - 6x - 16 = 0$$
$$(7x + 8)(x - 2) = 0$$
$$x = \frac{-8}{7} \qquad x = 2$$

6. Solve the equation with factoring by grouping.

$$15x^2 - 20x + 18x - 24 \;=\; 0$$

$$(5x + 6)(3x - 4) = 0$$
$$x = \frac{-6}{5} \qquad x = \frac{4}{3}$$

7. Factor the expression.

$$36x^2 - 49$$

$$(6x - 7)(6x + 7)$$

8. Factor the expression.

$$x^2 - 9x + 20$$

$$(x - 5)(x - 4)$$